

What Is Claimed Is:

1. A switching regulator, a step-down transformer in particular, having:

a switching device (13) for generating a pulsed signal (24) from an input signal (1) as a function of a switching signal (21);

a filtering device (14) for filtering the pulsed signal (24) and for outputting a smoothed output signal (18);

a controllable amplifier device (7, 11, 12) for generating the switching signal (21) from a reference signal (4) and an actual value signal (5) obtained from the output signal (18) via a feedback device (19, 20) as a function of a compensation signal (3); and

a compensation-signal generating device (2) for generating the compensation signal (3) from the input signal (1).
2. The switching regulator as recited in Claim 1,
wherein the amplifier device (7) has a complex grounded resistor (8), in particular for adjusting a primary gain and/or frequency compensation.
3. The switching regulator as recited in one or more of the preceding claims,
wherein the filtering device (14) has a low-pass filter, having an inductance (15) and a capacitance (17) in particular.
4. The switching regulator as recited in one or more of the preceding claims,
wherein a diode is connected in parallel to the filtering device (14), in particular for protecting the filtering device.
5. The switching regulator as recited in one or more of the preceding claims,
wherein a resistor network (19), a voltage divider (19) in particular, having essentially ohmic resistors, is connected to the amplifier device (7) via the feedback path (20).
6. The switching regulator as recited in one or more of the preceding claims,
wherein the controllable amplifier device (7, 11, 12) has a pulse-width modulating device (11) for generating a pulse-width modulated signal (22), the switching signal (21) in particular, from an oscillator signal (9) and an amplifier signal (23).
7. The switching regulator as recited in one or more of the preceding claims,
wherein the oscillator signal (9) supplied to the pulse-width modulating device (11) has a delta voltage-shaped curve.

8. The switching regulator as recited in one or more of the preceding claims, wherein the compensation signal (3) generated by the compensation-signal generating device (2) is a current signal.
9. The switching regulator as recited in one or more of the preceding claims, wherein the switching device (13) has a transistor, a MOSFET in particular.
10. The switching regulator as recited in one or more of the preceding claims, wherein the input signal (1) is a quasi-constant battery voltage.
11. The switching regulator as recited in one or more of the preceding claims, wherein the circuit between the pulse-width modulating device (11) and the switching device (13) has an additional amplifier device (12).
12. A switching regulation method having the following steps:

generating a compensation signal (3) from an input signal (1) in a compensation-signal generating device (2);

generating a switching signal (21) from a reference signal (4) and an actual value signal (5) obtained from the output signal (18) via a feedback device (19, 20) as a function of the compensation signal (3) in a controllable amplifier device (7, 11, 12);

generating a pulsed signal (24) from the input signal (1) as a function of the switching signal (21) in a switching device (13); and

filtering the pulsed signal (24) in a filtering device (14) and outputting a smoothed output signal (18).
13. The method as recited in Claim 12, wherein an amplifier signal (23) is generated with the help of a complex resistor (8) connected to an amplifier device (7).
14. The method as recited in Claim 12 or 13, wherein the output signal (18) is supplied to the amplifier device (7) via a resistor network (19), a voltage divider in particular, having ohmic resistors in particular, and the feedback path (20).
15. The method as recited in one or more of the preceding claims, wherein a pulse-width modulated signal (22), the switching signal (21) in particular, is generated from an oscillator signal (9) and the amplifier signal (23) in the controllable amplifier device (7, 11, 12) in a pulse-width modulating device (11).

16. The method as recited in one or more of the preceding claims,

wherein the pulse-width modulated signal (22) is amplified in an additional amplifier device (12) before it triggers the switching device (13).